

Numbers and the Number System

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000 □ identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

Fractions and Decimals

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents
- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- round decimals with one decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.

Addition and Subtraction

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Multiplication and Division

- recall multiplication and division facts for multiplication tables up to 12×12
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Geometry

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.

Position and Direction

- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

Measurement

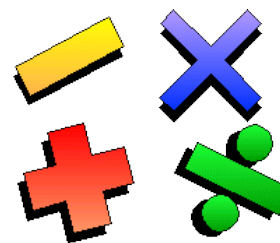
- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence
- read, write and convert time between analogue and digital 12- and 24-hour clocks
- solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

Statistics

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.



Woodfall Primary School



Year 4

Mathematics

Calculation Strategies



This leaflet aims to inform you of some calculation strategies that your children will be using in school. This will hopefully aid the completion of homework. However, the strategies used will be dependant on what is needed by your child and not all strategies will be necessarily be used.

ADDITION

Partitioning

$58 + 87$

$50 + 80 = 130$

$8 + 7 = 15$

$130 + 15 = 145$

Leading to partitioned numbers being written under one another: -

$$\begin{array}{r} 50 \\ 8 \end{array}$$

$$\begin{array}{r} 80 \\ 7 \end{array}$$

$$\begin{array}{r} 130 \\ 15 \end{array} = 145$$

Column addition

$$\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$$

$$\begin{array}{r} 783 \\ + 42 \\ \hline 825 \\ 1 \end{array}$$

$$\begin{array}{r} 367 \\ + 85 \\ \hline 452 \\ 11 \end{array}$$

SUBTRACTION

PARTITIONING

This process should be demonstrated using arrow cards to show the partitioning and base 10 materials or straw bundles to show the decomposition of the number.

$$\begin{array}{r} 89 \\ - 57 \\ \hline 30 \end{array} = \begin{array}{r} 80 \\ 50 \\ 30 \end{array} \begin{array}{r} 9 \\ 7 \\ 2 \end{array} = 32$$

From this the children will begin to exchange (not borrow).

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array}$$

This would be recorded by the children as:

$$\begin{array}{r} 60 \\ 70 \quad 11 \\ - 40 \quad 6 \\ \hline 20 \quad 5 = 25 \end{array} \text{ (progressing onto 3 digit numbers)}$$

Column subtraction

Numbers should continue to be referred to by their values and not their digits.

e.g. 140 - 80 or 14 tens - 8 ones as opposed to 14 - 8

$$\begin{array}{r} 7 \quad 14 \quad 1 \\ \cancel{8} \quad \cancel{5} \quad 4 \\ - 2 \quad 8 \quad 6 \\ \hline 5 \quad 6 \quad 8 \end{array}$$

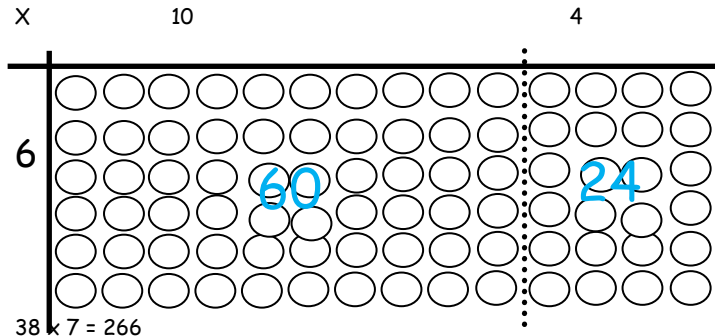
This should be extended to exchange across two places due to the presence of a zero.

$$\begin{array}{r} 9 \\ 5 \quad 1 \quad 1 \\ \cancel{8} \quad \cancel{0} \quad 5 \\ - 3 \quad 2 \quad 8 \\ \hline 2 \quad 7 \quad 7 \end{array}$$

MULTIPLICATION

Grid method—children will move from use the grid method with arrays

6 x 14



$$(6 \times 10) + (6 \times 4)$$

$$60 + 24$$

$$84$$

Leading to ...

to

| | | | |
|---|-----|----|-----|
| x | 30 | 8 | |
| 7 | 210 | 56 | 266 |

27 x 56 = 1512

| | | | |
|----|------|-----|------|
| x | 20 | 7 | |
| 50 | 1000 | 350 | 1120 |
| 6 | 120 | 42 | 392 |
| | | | 1512 |

Short multiplication

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 56 \quad (8 \times 7) \\ \underline{210} \quad (30 \times 7) \\ \hline 266 \end{array}$$

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \\ 1 \end{array}$$

DIVISION

Short division—using short method also known as bus stop.

468 ÷ 3 = 156

$$\begin{array}{r} 156 \\ 3 \overline{)468} \end{array}$$

222 ÷ 6 = 37

$$\begin{array}{r} 037 \\ 6 \overline{)222} \end{array}$$

Short division with remainders

743 ÷ 4 = 185 remainder 3

$$\begin{array}{r} 185 \text{ r } 3 \\ 4 \overline{)743} \end{array}$$